RECEIVED
FEB 25 2019
DIVISION OF WATER QUALITY

Attachment E – Notice of Intent

WATER QUALITY ORDER NO. 2013-0002-DWQ
GENERAL PERMIT NO. CAG990005

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item A. X New Applicator B. X Change of Information: WDID# 5A58AP00001 C. ☐ Change of ownership or responsibility: WDID# _____

II. DISCHARGER INFORMATION

A. Name Beale Air Force Base - 9 CES/CEIEC			
B. Mailing Address 6425 B st. Bldg. 25390			
C. City Beale AFB	D. County Yuba	E. State CA	F. Zip 95903
G. Contact Person Bruce Reinhardt	H. E-mail address bruce.reinhardt@us.af.mil	I. Title Stormwater Program Manager	J. Phone 530-634-4398

III. BILLING ADDRESS (Enter Information *only* if different from Section II above)

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. E-mail address	H. Title	I. Phone	

IV. RECEIVING WATER INFORMATION

A. Algaecide and aquatic herbicides are used to treat (check all that apply):

1. ☒ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: Drainage ditches throughout Beale Air Force Base
2. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
   Owner's name: _____
   Name of the conveyance system: _____
3. X Directly to river, lake, creek, stream, bay, ocean, etc.
   Name of water body: Dry Creek, Reeds Creek

B. Regional Water Quality Control Board(s) where treatment areas are located (REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region 5
(List all regions where algaecide and aquatic herbicide application is proposed.)

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms:

Arundo donax (giant reed), Himalayan blackberry (Rubus armeniacus), other riparian weeds

B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients

Rodeo, Isopropylamine salt of glyphosate

Habitat, Isopropylamine salt of imazapyr

C. Period of Application: Start Date April 1 (annually) End Date October 31 (annually)

D. Types of Adjuvants Used: Pro-tron (surfactant)

VI. AQUATIC PESTICIDE APPLICATION PLAN

Has an Aquatic Pesticide Application Plan been prepared and is the applicator familiar with its contents?
☒ Yes ☐ No

If not, when will it be prepared? _____

VII. NOTIFICATION

Have potentially affected public and governmental agencies been notified? ☐ Yes ☒ No

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?
☒ YES ☐ NO ☒ NA

IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: Calvin Hendrix

B. Signature: _____ **Date:** 7/21/2018

C. Title: Deputy Base Civil Engineer

XI. FOR STATE WATER BOARD STAFF USE ONLY

WDID:	**Date NOI Received:**	**Date NOI Processed:**
Case Handler's Initial:	**Fee Amount Received:** **$**	**Check #:**
☐ **Lyris List Notification of Posting of APAP**	**Date** _____	**Confirmation Sent** _____

AQUATIC PESTICIDE APPLICATION PLAN

Beale Air Force Base, CA

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR THE DISCHARGE OF AQUATIC PESTICIDES FOR AQUATIC WEED CONTROL IN WATERS OF THE UNITED STATES
GENERAL PERMIT NO. CAG990005

WATER QUALITY ORDER NO. 2013-0002-DWQ

24 April 2018

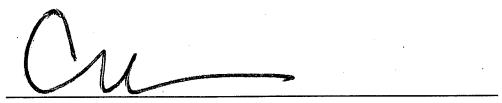
Prepared for:

State Water Resources Control Board
Central Valley Water Quality Control Board (Region 5)

CERTIFICATION

In accordance with Attachment B, Section V.B.1. Standard Provisions – Reporting, Signatory and Certification Requirements, Water Quality Order No. 2013-0002-DWQ Statewide General National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, General Permit No. CAG 990005:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. 122.22(d).)



Calvin G. Hendrix
Deputy Base Civil Engineer

7/21/2018
Date

Introduction

Beale Air Force Base (Beale AFB) is located in northern California approximately 10 miles east of the towns of Marysville and Yuba City, and about 45 miles north of Sacramento (see Figure 1). Beale AFB is 23,000 acres of grassland and oak woodlands located at the eastern edge of the Sacramento Valley floor and the Sierra Foothills within the Dry Creek/Bear River Watersheds. The 9th Reconnaissance Wing is responsible for providing national and theater command authorities with timely, reliable, high-quality, high-altitude reconnaissance products. To accomplish this mission, the wing is equipped with the nation's fleet of U-2 and RQ-4 reconnaissance aircraft and associated support equipment. The wing also maintains a high state of readiness in its combat support and combat service support forces for potential deployment in response to theater contingencies. The 9th Reconnaissance Wing at Beale AFB is composed of more than 3,000 personnel in four groups at Beale AFB and multiple overseas operating locations.

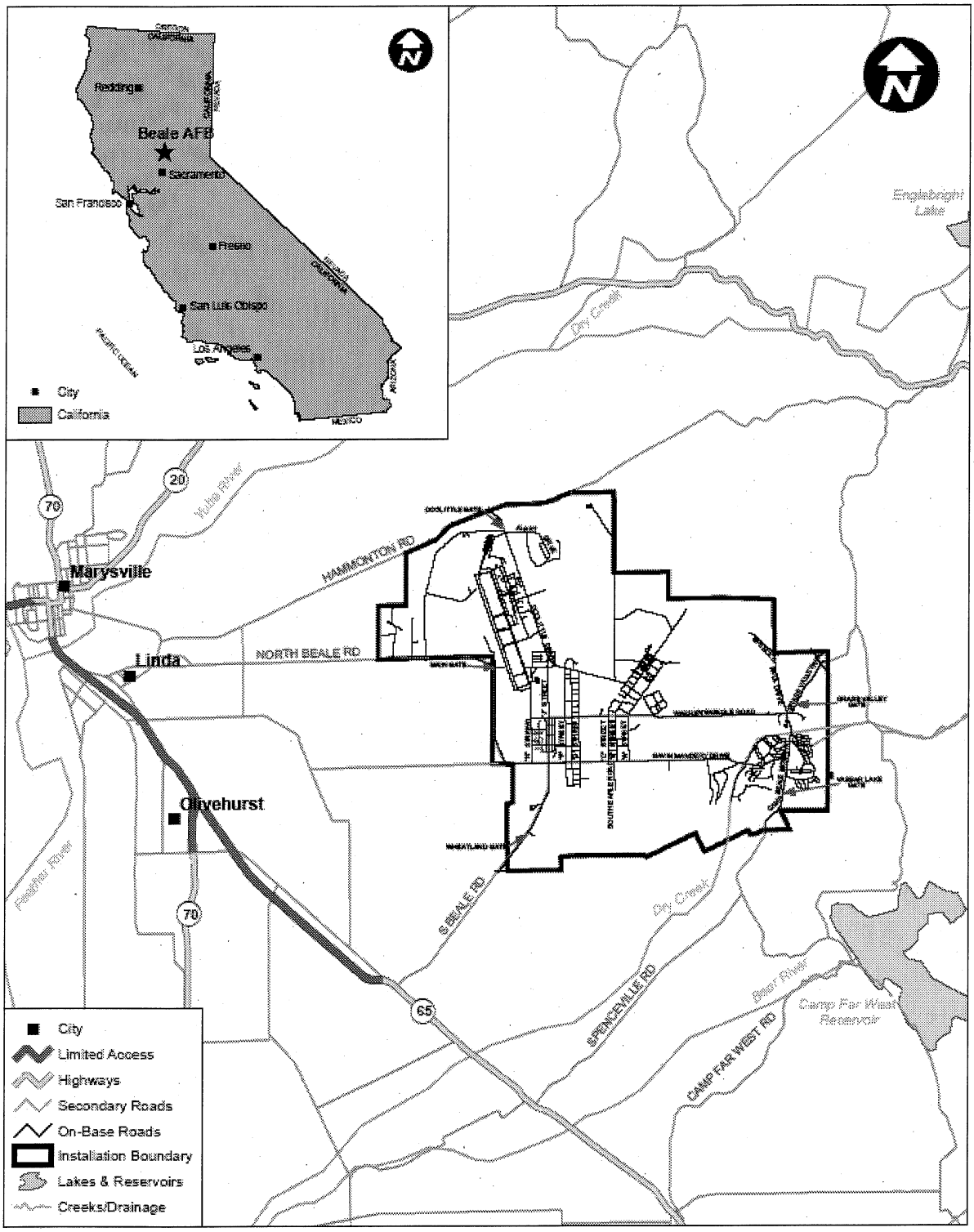
The 9th Civil Engineer Squadron (CES) is responsible for the management of weeds and other unwanted vegetation on Beale AFB. The 9th CES Environmental Section is required to control invasive weeds in order to promote native vegetation and wildlife, reduce fire fuel load, and improve pasture forage. The 9th CES Pest Management Section is required to control vegetation to support base mission requirements, including removing vegetation that impedes the flow of water, reduces stormwater or flood capacity, causes roads and other paths to become impassable, or causes a Bird Aircraft Strike Hazard (BASH) issue. A component of weed and vegetation management at Beale AFB is the responsible application of pesticides.

This Aquatic Pesticide Application Plan (APAP) is a comprehensive plan that describes three separate requirements for aquatic herbicide applications for the control of aquatic weeds on Beale AFB:

1. A project to control the invasive weed *Arundo donax L.*, or giant reed (referred to as "Arundo Project" throughout plan)
2. A mission-related requirement to control weeds and vegetation in waterways on an as needed basis (referred to as "Vegetation Control" throughout plan)
3. A mission-related requirement to control Himalayan blackberry near the flightline.

This plan will describe the applications, the need for the applications, best management practices to be implemented to reduce water quality impacts, and how those impacts will be monitored in accordance with Water Quality Order No. 2013-0002-DWQ.

Figure 1: Regional Location Map – Beale AFB



1. Description of the water system to which algaecides and aquatic herbicides are being applied;

1.1. Arundo Control

Herbicide applications for arundo control will be limited to Dry Creek, shown in Figure 2. Dry Creek is the sum of two perennial streams originating in the Sugarloaf Mountain and Pilot Peak watersheds. The creek is fed by intermittent streams as it flows westward through the Sierra Nevada foothills in eastern Yuba and western Nevada Counties. Dry Creek enters the eastern side of the base from the adjacent Spenceville Wildlife Area. The creek flows southwest and forks towards the southern edge of the base to create a western fork called Best Slough. After exiting the base, it flows southwest and meets the Bear River at Pleasant Grove Drive. Dry Creek flows year-round due to artificial water releases purchased from the Nevada (County) Irrigation District by CDFW.

1.2. Vegetation Control

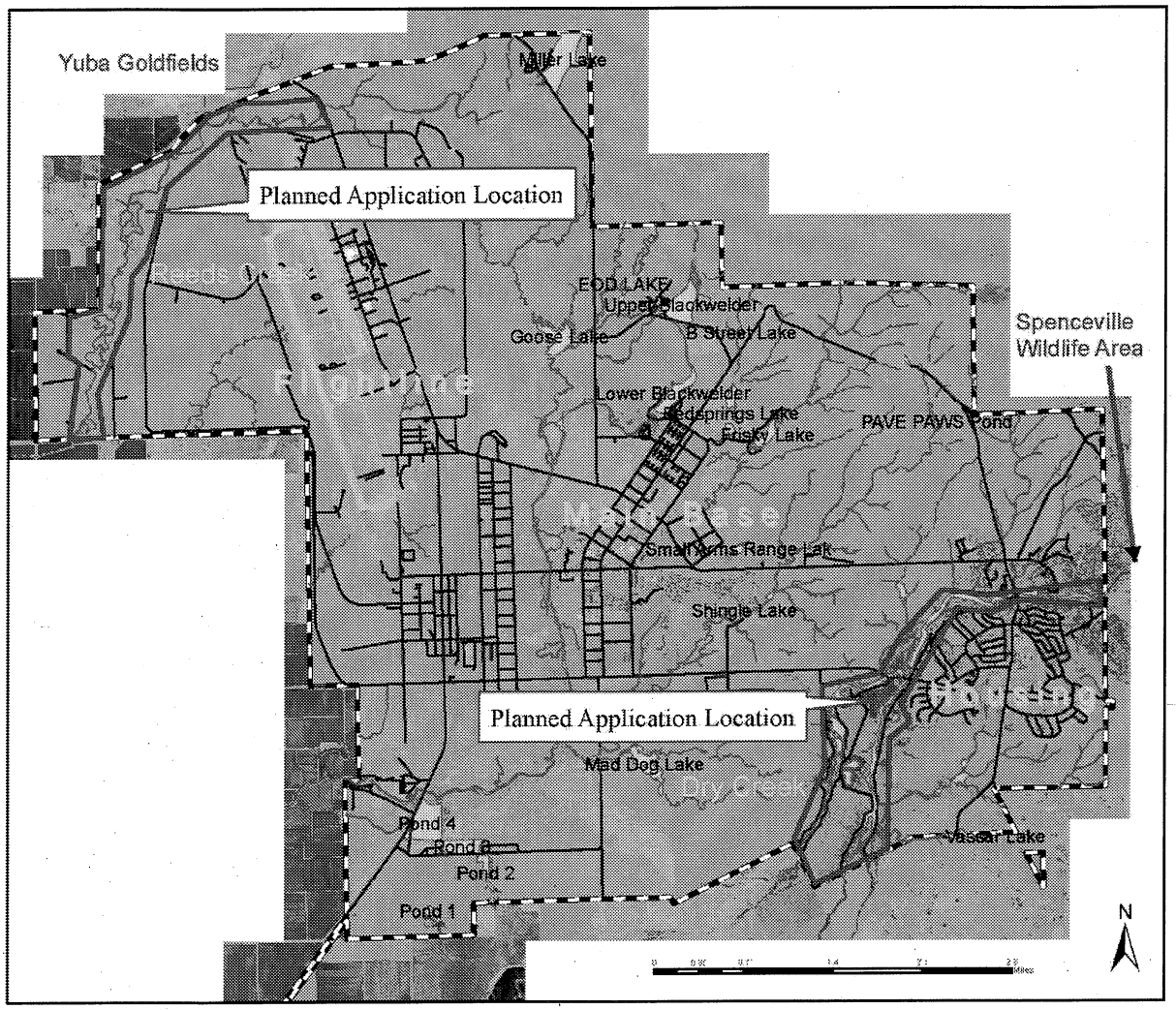
Applications for vegetation control are only performed on an as needed basis. Treatments are expected to happen along Dry Creek and Reeds Creek as shown in Figure 2. Dry Creek is described above in section 1.1. Reeds Creek is a seasonal stream fed by water released from Miller Lake, drainages around the flightline, and a discharge canal fed by groundwater pumping discharges from the adjacent Yuba Goldfields operation. Reeds Creek enters the base at its northwestern boundary and flows southwest along its northern border before turning south. Reeds creeks drains into Plumas Lake, southwest of the base.

Other exact locations and the specific water systems to be treated are unknown at this time. Applications could potentially be made to drainage ditches, creek beds and banks throughout the base where infestations of invasive weeds could interfere with mission requirements.

1.3. Himalayan Blackberry Control

Himalayan blackberry control will be conducted along Reeds Creek, shown in Figure 2. Reeds Creek is described above in section 1.2.

Figure 2: Facility Map and Planned Application Locations



2. Description of the treatment area in the water system;

2.1. Arundo Project

The application areas are a stretch of Dry Creek south of Gavin Mandery that has multiple small infestations in and along the banks of the waterway and a single infestation where Dry Creek enters the base form the Spenceville Wildlife Area. Planned treatment areas are shown in Figure 3. The total application area will be 0.5-1.0 acre.

Plants will be manually cut and removed from the site. Following manual removal an aquatic herbicide will be applied to the cut stumps or subsequent regrowth will be sprayed with an aquatic herbicide. The herbicide will not be applied directly to any flowing or non-flowing water.

2.2. Vegetation Control

Applications for vegetation control are only performed on an as needed basis. Treatments are expected to happen in Reeds Creek. Other exact locations and the specific water systems to be treated are unknown at this time. Applications could potentially be made to drainage ditches, creek beds and banks throughout the base where invasive weed infestations may interfere with mission requirements or adversely impact water flow. The planned treatment location along Reeds Creek is shown in Figure 4. Infestations will be sprayed with aquatic herbicide. Herbicides will never be applied directly to any flowing water.

2.3. Himalayan Blackberry Control

The application areas are along Reeds Creek west of the flightline, shown in Figure 4. Approximately 15 acres of Himalayan blackberry will be treated in this area. This acreage includes infestations that are not directly adjacent to Reeds Creek. Aquatic herbicide will be applied to in August or September. At this time of year water levels in Reeds Creek are low, or water is no longer flowing. Herbicides will never be applied directly to any flowing water.

Figure 3. Planned Application Locations along Dry Creek

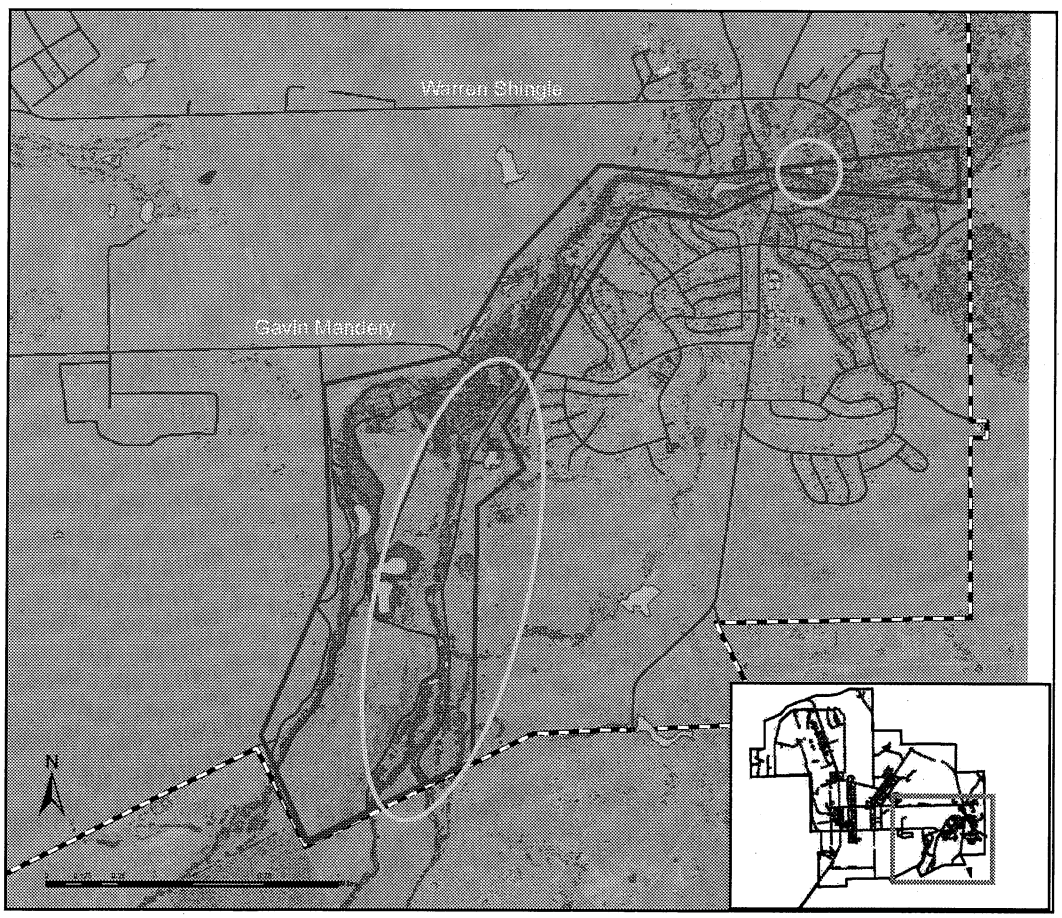
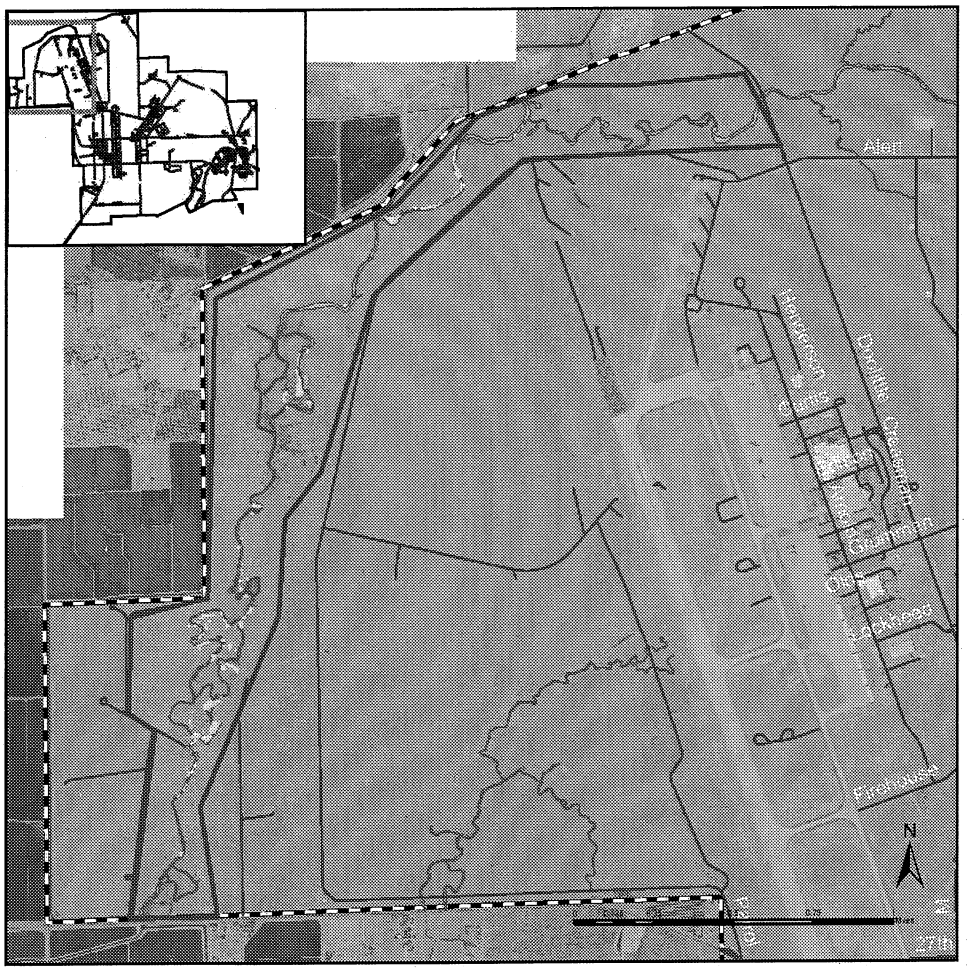


Figure 4. Planned Application Locations along Reeds Creek



3. Description of types of weed(s) and algae that are being controlled and why;

3.1. Arundo Project

Arundo donax L., or Giant Reed. This weed is an invasive species that is blocking upstream passage for special-status anadromous fish.

3.2. Vegetation Control

Vegetation that may be controlled includes Himalayan blackberry and other invasive terrestrial weeds, aquatic weeds and willows. Vegetation control in ditches, creeks, or other waterways will be accomplished on an as needed basis to meet mission requirements, and may include the removal of vegetation that impedes the flow of water, causes roads and other paths to become impassable, or causes a Bird/Wildlife Aircraft Strike Hazard (BASH) concern.

3.3. Himalayan Blackberry Control

Himalayan blackberry infestations west of the flightline create potential bird nesting habitat, which in turn creates a Bird/Wildlife Aircraft Strike Hazard (BASH) concern.

4. Algaecide and aquatic herbicide products or types of algaecides and aquatic herbicides expected to be used and if known their degradation byproducts, the method in which they are applied, and if applicable, the adjuvants and surfactants used;

4.1. Arundo Project

An aquatic approved formulation of Glyphosate such as AquaMaster or Rodeo combined with an approved formulation of Imazapyr such as Habitat will be used.

Active Ingredients: Isopropylamine salt of glyphosate and Isopropylamine salt of Imazapyr, there are no known degradation byproducts.

Applications will be done according to label instructions by DoD or state certified pesticide applicators. Foliar applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers. Cut-stump application will be done by spraying a dilute solution directly onto the cut stumps using a low volume back pack sprayer.

The herbicides will be mixed with the aquatic approved non-ionic surfactant Pro-tron. No additional adjuvants will be used.

4.2. Vegetation Control

An aquatic approved formulation of Glyphosate such as AquaMaster or Rodeo will be used.

Active Ingredient: Isopropylamine salt of glyphosate, there are no known degradation byproducts.

Applications will be done according to label instructions and applied by DoD or state certified pesticide applicators. Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers.

Herbicides may be mixed with an aquatic approved non-ionic surfactant such as Pro-tron. No additional adjuvants will be used.

4.3. Himalayan Blackberry Control

An aquatic approved formulation of Glyphosate such as AquaMaster or Rodeo will be used.

Active Ingredient: Isopropylamine salt of glyphosate, there are no known degradation byproducts.

Applications will be done according to label instructions by DoD or state certified pesticide applicators. Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers.

Herbicides may be mixed with an aquatic approved non-ionic surfactant such as Pro-tron. No additional adjuvants will be used.

5. Discussion of the factors influencing the decision to select algaecide and aquatic herbicide applications for algae and weed control;

5.1. Arundo Project

No growth of this weed can be allowed. Even small stands of Arundo should be removed due to its invasive nature. Aquatic herbicide application is the preferred control method for this weed because of its invasive nature. Limiting the control method to mechanical means is not possible because this technique would disturb the streambed in an environmentally-sensitive area and would likely spread viable shoots downstream, further spreading the invasive weed. Herbicide will be applied directly to cut stumps of canes or to re-sprouts from cut cane stumps.

5.2. Vegetation Control

Vegetation control in ditches, creeks, or other waterways will be accomplished on an as needed basis according to mission requirements, and can include the removal of vegetation that impedes the flow of water, causes roads and other paths to become impassable, and may cause a BASH concern. Nonchemical control efforts, specifically mechanical removal and mowing, will be used to the maximum extent possible to control vegetation before applying herbicides. However, removal of vegetation in drainages, creeks, or other waterways by mechanical means has limitations in certain cases, such as the inability for heavy equipment to access some locations. Aquatic herbicides will be applied by backpack sprayer in these locations, which eliminates the need for equipment to travel through wetlands and vernal pools. Aquatic herbicide will be used because infestations are along the banks of a stream channel. Aquatic herbicides will never be applied directly to any flowing water.

5.3. Himalayan Blackberry Control

Control of this species is needed west of the flightline to reduce the potential for creating a BASH concern. Himalayan blackberry in this area was initially removed as an emergency activity due to birds using it as nesting habitat. Continued control of this species is required to protect human safety and reduce the need for take of migratory birds posing a BASH. Blackberry in this area was initially removed using mechanical methods. Aquatic herbicide will be used to spray re-sprouts and plants in areas that are not accessible to machinery. Aquatic herbicides will be applied by backpack sprayer in these locations, which eliminates the need for equipment to

travel through wetlands and vernal pools. Aquatic herbicide will be used because infestations are along the banks of a stream channel. Aquatic herbicides will never be applied directly to any flowing water.

6. If applicable, list the gates or control structures to be used to control the extent of receiving waters potentially affected by algaecide and aquatic herbicide application and provide an inspection schedule of those gates or control structures to ensure they are not leaking;

6.1. Arundo Project - N/A

6.2. Vegetation Control - N/A

6.3. Himalayan Blackberry Control - N/A

7. If the Discharger has been granted a short-term or seasonal exception under State Water Board *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays,* and Estuaries of California* (Policy) section 5.3 from meeting acrolein and copper receiving water limitations, provide the beginning and ending dates of the exception period, and justification for the needed time for the exception. If algaecide and aquatic herbicide applications occur outside of the exception period, describe plans to ensure that receiving water criteria are not exceeded because the Dischargers must comply with the acrolein and copper receiving water limitations for all applications that occur outside of the exception period;

7.1. Arundo Project – N/A

7.2. Vegetation Control – N/A

7.3. Himalayan Blackberry Control – N/A

8. Description of monitoring program

8.1. Arundo Project

Beale AFB will monitor the use of glyphosate in compliance with Attachment C of the General Permit. All laboratory analyses will be conducted at a laboratory certified by the California Department of Public Health in accordance with California Water Code section 13176. All analyses shall be conducted in accordance with the EPA's "Guidelines Establishing Test Procedures for Analysis of Pollutants."

Visual monitoring of the aquatic herbicide applications will be accomplished for all applications at all sites using the template in Figure 4.

Because the active ingredient of the aquatic herbicide used for vegetation control is glyphosate, physical and chemical monitoring will be conducted for one application event. Background

samples will be collected upstream at the time of the application event. Since aquatic herbicides will never be applied to flowing waters, event monitoring samples will be collected immediately outside of the treatment area in non-flowing waters, immediately after the application event, but after sufficient time has elapsed such that treated water would have exited the treatment area. Post-Event samples will be collected within the treatment area within one week after the application event.

Monitoring procedures for physical and chemical properties will follow the following table:

Sample Type	Constituent / Parameter	Sample Method	Sample Type Requirement
Physical	1. Temperature[1] 2. pH[1] 3. Turbidity[1] 4. Electrical conductivity[1]	Grab 3' Below Surface or Mid-depth if Water Body is < 6'	Background, Event and Post Event Monitoring
Chemical	1. Active Ingredient - Imazapyr[2] 2. Dissolved Oxygen[1]	Grab 3' Below Surface or Mid-depth if Water Body is < 6'	Background, Event and Post Event Monitoring

[1] Field Testing
[2] Laboratory Testing

An annual report detailing all required information, as outlined in Attachment C of the General Permit, will be submitted to the state and regional Water Quality Control Board.

8.2. Vegetation Control

Beale AFB will use the same monitoring protocol as that outlined in section 8.1 for this activity.

8.3 Himalayan Blackberry Control

Beale AFB will use the same monitoring protocol as that outlined in section 8.1 for this activity.

Figure 4: Beale AFB Pesticide Usage and Visual Monitoring Log

Beale AFB Pesticide Usage and Visual Monitoring Log

Name: _____ Date: _____

Event type: ___Background ___Event ___Post-Event

Location (Address, crossroads, map coordinates, etc.): _____

Water body being treated (Canal, creek, lake, etc.): _____

Was the 9 CES/CEIE Natural Resources Manager consulted before application? ___ Yes ___ No

9 CES/CEIE Comments: _____

Pesticide details (include brand name, active ingredient w/ % concentration): _____

_____

Amount of pesticide applied: _____

Describe application techniques and/or procedures: _____

_____

Describe the reasoning for this application event: _____

_____

Visual Monitoring Results

Appearance of Waterway

Flow rate of the target area = _____

Surface area of water being treated = _____

Volume of water being treated = _____

Describe the appearance of waterway (sheen, color, clarity, etc.) = _____

Weather Conditions

Temperature = _____°F

Wind Speed = _____

Date of last rain event: _____

Is a rain event projected in the next 12 hours? _____ Yes _____ No

I certify that this pesticide application event followed all guidelines and BMPs described in the Beale AFB Aquatic Pesticide Application Plan.

_____ _____

Signature Date

9. Description of procedures used to prevent sample contamination from persons, equipment, and vehicles associated with algaecide and aquatic herbicide application;

9.1. Arundo Project

All samples will be collected in clean, amber glass bottles and properly labeled, including the date and time the sample is collected. Proper personal protective equipment will be worn, including disposable nitrile gloves, to prevent contamination. Samples will be collected without interference from any equipment or vehicles. Samples will be accounted for utilizing a standard "Chain of Custody" form supplied by the laboratory performing the analysis to ensure the integrity of the sample collection and transfer process. Samples will be stored on ice and transported to the lab within appropriate hold times for the required tests. Samples will be transported separately from the aquatic herbicides and application equipment on the day of the application event.

9.2. Vegetation Control

The same procedures outlined in section 9.1 will be used for this activity.

9.3. Himalayan Blackberry Control

The same procedures outlined in section 9.1 will be used for this activity.

10. Description of the BMPs to be implemented. The BMPs shall include, at the minimum:

10.1. Arundo Project

10.1.a. Measures to prevent algaecide and aquatic herbicide spill and for spill containment during the event of a spill;

All applications will be performed by DoD or state certified pesticide applicators. All personnel will follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators ensure daily that application equipment is in proper working order. Aquatic herbicides are stored inside. Spill response and cleanup supplies are maintained in all vehicles and pesticide storage areas.

All personnel responsible for handling, mixing, or applying pesticides must complete Beale's Spill Prevention, Control, and Countermeasures training annually. Beale has a comprehensive program for the identification, response, and control of hazardous materials spills, with personnel on stand-by to respond to any releases of hazmat, including pesticides, to the environment. Any contaminated media (water or soil) will be contained and cleaned or properly disposed of to the maximum extent possible. Beale personnel will report all spills to appropriate local, state, and federal agencies according to applicable regulations.

10.1.b. Measures to ensure that only an appropriate rate of application consistent with product label requirements is applied for the targeted weeds or algae;

All applications will be performed by DoD or state certified pesticide applicators. Over application will be avoided by following the specific product labels for the aquatic herbicide used. Only sufficient material to carry out the treatment will be transported for the day's application.

To ensure it functions properly, application equipment is calibrated at least annually unless herbicide label instructions require a more frequent calibration.

10.1.c. The Discharger's plan in educating its staff and algaecide and aquatic herbicide applicators on how to avoid any potential adverse effects from the algaecide and aquatic herbicide applications;

All aquatic herbicide applicators will possess DoD or state certification for applying pesticides and be trained to follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators will complete the Beale Spill Prevention, Control, and Countermeasures training annually. Beale AFB Environmental Section will train all personnel applying herbicides and pesticides on the Water Quality Order No. 2013-0002-DWQ State General Permit and the requirements of this APAP annually.

10.1.d. Discussion on planning and coordination with nearby farmers and agencies with water rights diversion so that beneficial uses of the water (irrigation, drinking water supply, domestic stock water, etc.) are not impacted during the treatment period;

Aquatic herbicide applications for treatment of Arundo at Beale AFB are not expected to impact any beneficial uses of water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

10.1.e. A description of measures that will be used for preventing fish kill when algaecides and aquatic herbicides will be used for algae and aquatic weed controls.

Aquatic herbicide applications at Beale AFB are not expected to have any potential for fish kill. Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

Applications will be done according to the label instructions by DoD or a state certified pesticide applicators. Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers to prevent over application and excess herbicide runoff downstream.

10.2. Vegetation Control

10.2.a. Measures to prevent algaecide and aquatic herbicide spill and for spill containment during the event of a spill;

All applications will be performed by DoD or state certified pesticide applicators. All personnel will follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators ensure daily that application equipment is in proper working order. Aquatic herbicides are stored inside. Spill response and cleanup supplies are maintained in all vehicles and pesticide storage areas. Spill response plans are posted in the office area, breezeway and chemical mixing area.

All personnel responsible for handling, mixing, or applying pesticides must complete Beale's Spill Prevention, Control, and Countermeasures training annually. Beale has a comprehensive program for the identification, response, and control of hazardous materials spills, with personnel on stand-by to respond to any releases of hazmat, including pesticides, to the environment. Any contaminated media (water or soil) will be contained and cleaned or properly disposed of to the maximum extent possible. Beale personnel will report all spills to appropriate local, state, and federal agencies according to applicable regulations.

10.2.b. Measures to ensure that only an appropriate rate of application consistent with product label requirements is applied for the targeted weeds or algae;

All applications will be performed by DoD or state certified pesticide applicators. Over application will be avoided by following the specific product labels for the aquatic herbicide used. Only sufficient material to carry out the treatment will be transported for the day's application.

To ensure it functions properly, application equipment is calibrated at least annually unless herbicide label instructions require a more frequent calibration.

10.2.c. The Discharger's plan in educating its staff and algaecide and aquatic herbicide applicators on how to avoid any potential adverse effects* from the algaecide and aquatic herbicide applications;

All aquatic herbicide applicators will possess DoD or state certification for applying pesticides and be trained to follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators will complete the Beale Spill Prevention, Control, and Countermeasures training annually. Beale AFB Environmental Section will train all personnel applying herbicides and pesticides on the

Water Quality Order No. 2013-0002-DWQ State General Permit and the requirements of this APAP annually.

10.2.d. Discussion on planning and coordination with nearby farmers and agencies with water rights diversion so that beneficial uses of the water (irrigation, drinking water supply, domestic stock water, etc.) are not impacted during the treatment period;

Aquatic herbicide applications for vegetation control at Beale AFB are not expected to impact any beneficial uses of water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

10.2.e. A description of measures that will be used for preventing fish kill when algaecides and aquatic herbicides will be used for algae and aquatic weed controls.

Aquatic herbicide applications for vegetation control at Beale AFB are not expected to have any potential for fish kill. Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

Applications will be done according to the label instructions by DoD or state certified pesticide applicator. Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers to prevent over application and excess herbicide runoff downstream.

10.3 Himalayan Blackberry Control

10.3.a. Measures to prevent algaecide and aquatic herbicide spill and for spill containment during the event of a spill;

All applications will be performed by DoD or state certified pesticide applicators. All personnel will follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators ensure daily that application equipment is in proper working order. Aquatic herbicides are stored inside. Spill response and cleanup supplies are maintained in all vehicles and pesticide storage areas.

All personnel responsible for handling, mixing, or applying pesticides must complete Beale's Spill Prevention, Control, and Countermeasures training annually. Beale has a comprehensive program for the identification, response, and control of hazardous materials spills, with personnel on stand-by to respond to any releases of hazmat, including pesticides, to the environment. Any contaminated media (water or soil) will be contained and cleaned or properly disposed of to the

maximum extent possible. Beale personnel will report all spills to appropriate local, state, and federal agencies according to applicable regulations.

10.3.b. Measures to ensure that only an appropriate rate of application consistent with product label requirements is applied for the targeted weeds or algae;

All applications will be performed by DoD or state certified pesticide applicators. Over application will be avoided by following the specific product labels for the aquatic herbicide used. Only sufficient material to carry out the treatment will be transported for the day's application.

To ensure it functions properly, application equipment is calibrated at least annually unless herbicide label instructions require a more frequent calibration.

10.3.c. The Discharger's plan in educating its staff and algaecide and aquatic herbicide applicators on how to avoid any potential adverse effects from the algaecide and aquatic herbicide applications;

All aquatic herbicide applicators will possess DoD or state certification for applying pesticides and be trained to follow the storage, mixing, transport, application, and spill response procedures per USEPA and DPR rules, regulations and label instructions. Aquatic herbicide applicators will complete the Beale Spill Prevention, Control, and Countermeasures training annually. Beale AFB Environmental Section will train all personnel applying herbicides and pesticides on the Water Quality Order No. 2013-0002-DWQ State General Permit and the requirements of this APAP annually.

10.3.d. Discussion on planning and coordination with nearby farmers and agencies with water rights diversion so that beneficial uses of the water (irrigation, drinking water supply, domestic stock water, etc.) are not impacted during the treatment period;

Aquatic herbicide applications for treatment of Himalayan blackberry at Beale AFB are not expected to impact any beneficial uses of water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

10.3.e. A description of measures that will be used for preventing fish kill when algaecides and aquatic herbicides will be used for algae and aquatic weed controls.

Aquatic herbicide applications at Beale AFB are not expected to have any potential for fish kill. Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not

be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

Applications will be done according to the label instructions by DoD or a state certified pesticide applicators. Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers to prevent over application and excess herbicide runoff downstream.

11. Examination of Possible Alternatives. Dischargers should examine the alternatives to algaecide and aquatic herbicide use to reduce the need for applying algaecides and herbicides. Such methods include:

11.1 Arundo Project

11.1.a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms including plants, algaecide and aquatic herbicide resistance, feasibility, and cost effectiveness should be considered:

11.1.a.i. No action;

Arundo (Giant Reed) is an invasive species that is impacting fish passage on a stream that is habitat for special-status anadromous fish. No action will continue to allow the weed to spread and negatively impact special-status fish species.

11.1.a.ii. Prevention;

Arundo's invasive nature makes prevention very difficult. The canes cut down during vegetation removal will be collected and disposed of properly off base at a landfill to prevent them from spreading further.

11.1.a.iii. Mechanical or physical methods;

The alternative method of mechanical control was considered but is not possible because this method would disturb the streambed in an environmentally-sensitive area and would likely spread viable shoots downstream, further spreading the invasive weed.

11.1.a.iv. Cultural methods;

There are no cultural control methods to remove Arundo.

11.1.a.v. Biological control agents; and

There are no biological control agents to remove Arundo.

11.1.a.vi. Algaecides and aquatic herbicides;

If there are no alternatives to algaecides and aquatic herbicides, Dischargers shall use the minimum amount of algaecides and aquatic herbicides that is necessary to have an effective control program and is consistent with the algaecide and aquatic herbicide product label requirements.

Sites potentially requiring aquatic herbicide treatment will be surveyed first to assess the area and any potential impacts if herbicides are applied. Herbicides will be mixed in a designated area with appropriate containment and spill-prevention measures. Only the required amount of herbicide for that day's applications will be transported to the site. Applications will be done according to the label instructions by DoD or state certified pesticide applicators to ensure the proper amount of herbicide is used.

11.1.b. Using the least intrusive method of algaecide and aquatic herbicide application;

Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers to prevent over application and excess herbicide runoff downstream.

Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

11.1.c. Applying a decision matrix concept to the choice of the most appropriate formulation.

Trained, DoD or state certified pesticide applicators make an informed decision on the application of aquatic herbicides by scouting the area to be treated, making a positive identification of Arundo present, and checking the herbicide product label for control efficacy. Label instructions will be followed to determine appropriate rates of application and to identify any warnings or conditions that limit the application. The certified applicator may utilize an aquatic approved surfactant according to label instructions in order to improve the penetration and translocation of the herbicide into the weed stumps.

11.2. Vegetation Control

11.2.a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms including plants, algaecide and aquatic herbicide resistance, feasibility, and cost effectiveness should be considered:

11.2.a.i. No action;

As feasible, this technique is used. Vegetation control in ditches, creeks, or other waterways will be accomplished on an as needed basis according to mission requirements. No action is taken until the unwanted and invasive vegetation could impact the base mission by impeding the flow of water, causing roads and other paths to become impassable, and causing a BASH issue.

11.2.a.ii. Prevention;

The Beale AFB Civil Engineer Squadron utilizes preventative maintenance measures to try to limit the potential for excess vegetation that could impact the base mission. An example of this preventative maintenance is removing sediment build-up in drainages according to applicable water quality regulations to increase the capacity of the drainage and improve water flow. However, this technique has limitations, including the potential for environmental impacts by disturbed sediment in waterways.

11.2.a.iii. Mechanical or physical methods;

Mechanical removal, hand-pulling, weed-whacking, and mowing of vegetation will be used to the maximum extent possible to control vegetation before applying aquatic herbicides. However, removal of vegetation in drainages, creeks, or other waterways by mechanical means has limitations in many cases. These techniques are very labor intensive per unit acre or length of water treated. Environmental impacts due to the use of mechanical techniques include the creation of water-borne sediment and turbidity by personnel and equipment, which lowers dissolved oxygen and prevents light penetration. Mechanical means can cause fragmentation of aquatic weeds, which in many cases helps weeds re-establish and spread. Applying aquatic herbicides by backpack sprayer eliminates the need for equipment to travel through wetlands and vernal pools.

11.2.a.iv. Cultural methods;

Beale AFB has a grounds maintenance contract to provide general grounds upkeep service to the main base areas and provide a measure of preventative maintenance. However, cultural methods cannot be utilized to respond quickly to control aquatic weeds that are identified to have the potential to impact the base mission.

11.2.a.v. Biological control agents;

The biological control of cattle grazing is used to control vegetation in many locations throughout Beale AFB. However, grazing is not suitable for most aquatic locations and is not feasible in the short timeframe required for control when aquatic weeds are identified to have the potential to impact the base mission.

11.2.a.vi. Algaecides and aquatic herbicides;

If there are no alternatives to algaecides and aquatic herbicides, Dischargers shall use the minimum amount of algaecides and aquatic herbicides that is necessary to

have an effective control program and is consistent with the algaecide and aquatic herbicide product label requirements.

Sites potentially requiring aquatic herbicide treatment will be surveyed first to assess the area and any potential impacts if herbicides are applied. Herbicides will be mixed in a designated area with appropriate containment and spill-prevention measures. Only the required amount of herbicide for that day's applications will be transported to the site. Applications will be done according to the label instructions by DoD or state certified pesticide applicators to ensure the proper amount of herbicide is used.

11.2.b. Using the least intrusive method of algaecide and aquatic herbicide application;

Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers to prevent over application and excess herbicide runoff downstream.

Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

11.2.c. Applying a decision matrix concept to the choice of the most appropriate formulation.

Trained, DoD or state certified pesticide applicators make an informed decision on the application of aquatic herbicides by scouting the area to be treated, making a positive identification of aquatic weeds, determining any potential mission impacts related to the weeds, and checking the aquatic herbicide product label for control efficacy. Label instructions will be followed to determine appropriate rates of application and to identify any warnings or conditions that limit the application.

11.1 Himalayan Blackberry Control

11.1.a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms including plants, algaecide and aquatic herbicide resistance, feasibility, and cost effectiveness should be considered:

11.1.a.i. No action;

Himalayan blackberry is located west of the flightline on the base. If it is not treated it will re-sprout and create nesting habitat attractive to migratory birds. Nesting birds near the flightline create a Bird/wildlife Aircraft Strike Hazard (BASH). If blackberry is not controlled it may lead to injuries or fatalities due to air strikes and/or take of migratory birds and damage to wetlands if

emergency mechanical removal is required. Himalayan blackberry outside of the area indicated in Figure 3 will not be treated.

11.1.a.ii. Prevention;

Himalayan blackberry is already well-established in the area to be treated. Cultural measures to prevent future re-introduction to the area will be implemented. Reducing bird habitat will prevent future seed introduction in bird feces. Care will be taken to prevent the movement of plant parts downstream. If needed, area will be seeded with native plants to prevent re-invasion. Follow-up monitoring will be conducted so that re-sprouts can be identified and removed.

11.1.a.iii. Mechanical or physical methods;

Weed-whacking, and mowing of vegetation will be used to the maximum extent possible to control vegetation before applying aquatic herbicides. However, some blackberry will still re-sprout after mowing or weed-whacking. In addition, removal of vegetation in drainages, creeks, or other waterways by mechanical means has limitations in many cases. These techniques are very labor intensive per unit acre or length of water treated. Environmental impacts due to the use of mechanical techniques include the creation of water-borne sediment and turbidity by personnel and equipment, which lowers dissolved oxygen and prevents light penetration. Mechanical means can cause fragmentation of aquatic weeds, which in many cases helps weeds re-establish and spread. Applying aquatic herbicides by backpack sprayer eliminates the need for equipment to travel through wetlands and vernal pools.

11.1.a.iv. Cultural methods;

The following cultural methods will be used to prevent re-introduction: Ensuring soil, gravel, and other fill material brought into the area is not contaminated. Avoiding unloading, parking, or storing equipment and vehicles in infested areas. Removing plants, plant parts, and seeds from personal gear, clothing, pets, vehicles, and equipment. Washing vehicles, including tires and undercarriage, and equipment at designated cleaning sites before leaving infested areas. Bagging or tarp plants, plant parts, and seeds before transporting to a designated disposal site (e.g. landfill).

11.1.a.v. Biological control agents; and

There are no biological control agents for Himalayan blackberry.

11.1.a.vi. Algaecides and aquatic herbicides;

If there are no alternatives to algaecides and aquatic herbicides, Dischargers shall use the minimum amount of algaecides and aquatic herbicides that is necessary to have an effective control program and is consistent with the algaecide and aquatic herbicide product label requirements.

Sites potentially requiring aquatic herbicide treatment will be surveyed first to assess the area and any potential impacts if herbicides are applied. Herbicides will be mixed in a designated area with appropriate containment and spill-prevention measures. Only the required amount of herbicide for that day's applications will be transported to the site. Applications will be done according to the label instructions by DoD or state certified pesticide applicators to ensure the proper amount of herbicide is used.

11.1.b. Using the least intrusive method of algaecide and aquatic herbicide application;

Applications will be done with a pressurized hydraulic sprayer and/or by hand with small pressurized 1-4 gallon sprayers to prevent over application and excess herbicide runoff downstream.

Several measures will be taken to limit the impact of the herbicides in water. Aquatic herbicides will never be applied directly to flowing water. Aquatic herbicide applications are only allowed from May 1 to October 1 to avoid the local wet season. In addition, aquatic herbicides will not be applied during any wet weather or 12 hours before or after a rain event. Aquatic herbicides will only be applied when winds are less than 5 mph.

11.1.c. Applying a decision matrix concept to the choice of the most appropriate formulation.

Trained, DoD or state certified pesticide applicators make an informed decision on the application of aquatic herbicides by scouting the area to be treated, making a positive identification of Himalayan blackberry present, and checking the herbicide product label for control efficacy. Label instructions will be followed to determine appropriate rates of application and to identify any warnings or conditions that limit the application. The certified applicator may utilize an aquatic approved surfactant such as Pro-tron according to label instructions in order to improve the penetration and translocation of the herbicide into the weed stumps.